

Clustering for Windows NT(R) Server” (hereinafter “Wolfpack”). The Examiner indicated that claims 1-4, 6, 12-14, and 19-23 were rejected based on figure 1-1 of Wolfpack. The Examiner indicated that claims 7-10, 16-17 were rejected based on figure 1-1 and the disclosure on page 2 of Wolfpack. The Examiner indicated that claims 1-23 were rejected under 35 U.S.C 103(a) as being unpatentable over the submitted prior art Wolfpack in view of the popular industrial fault-tolerance practice for servers, the RAID control.

Applicant respectfully traverses the rejections.

35 U.S.C. 102 rejection of Claims 1-4, 6, 12-14, and 19-23

The Examiner has rejected Claims 1-4, 6, 12-14, and 19-23 based on figure 1-1 of Wolfpack. In order to constitute a 102 reference, the reference must teach all the limitations of the claim. Wolfpack figure 1-1 discloses a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). The Examiner suggests that the limitations are taught by the reference because Wolfpack describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1) (Wolfpack, figure 1-1, page 6).

Claim 1 is an independent claim. Claim 1 requires “receiving on said first controller a request to reserve said logical I/O device; and communicating by means of said bus from said first to said second controller a reservation request for said logical I/O device for execution by said second controller, in response to said receiving”. Wolfpack describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Wolfpack does not disclose “receiving on said first controller a request to reserve said logical I/O device” of Claim 1. Further, Wolfpack does not teach “communicating by means of said bus from said first to said second controller a reservation request for said logical I/O device for execution by said second controller, in response to said receiving” of Claim 1. For at least these reasons, the independent Claim 1 is distinguished from and allowable over the teachings of Wolfpack.

Claim 12 is an independent claim. Claim 12 requires “receiving, on said first controller, a request to release said logical I/O device; and communicating a release request for said logical I/O device over said bus from said first controller to said second

controller for execution by said second controller, in response to said receipt of said request to release.” Wolfpack describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Wolfpack does not disclose “receiving, on said first controller, a request to release said logical I/O device” of Claim 12. Further, Wolfpack does not teach “communicating a release request for said logical I/O device over said bus from said first controller to said second controller for execution by said second controller, in response to said receipt of said request to release.” of Claim 12. For at least these reasons, the independent Claim 12 is distinguished from and allowable over the teachings of Wolfpack.

Claim 19 is an independent claim. Claim 19 requires a “means for receiving on said first controller a request to reserve said logical I/O device; and means for communicating from said first to said second controller a reservation request for said logical I/O device for execution by said second controller, in response to said receiving.” Wolfpack describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Wolfpack does not disclose a “means for receiving on said first controller a request to reserve said logical I/O device” of Claim 19. Further, Wolfpack does not teach a “means for communicating from said first to said second controller a reservation request for said logical I/O device for execution by said second controller, in response to said receiving” of Claim 19. For at least these reasons, the independent Claim 19 is further distinguished from and allowable over the teachings of Wolfpack.

Claim 20 is an independent claim. Claim 20 requires a “means for receiving on said first controller a request to release said logical I/O device; and means for communicating by means of said bus from said first to said second controller a release request for said logical I/O device for execution by said second controller, in response to said receiving.” Wolfpack describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Wolfpack does not disclose a “means for receiving on said first controller a request to release said logical I/O device” of Claim 20. Further, Wolfpack does not teach a “means for communicating by means of said bus from said first to said second controller a release request for said logical I/O device for execution by said second controller, in response to said receiving” of Claim 20. For at

least these reasons, the dependent Claim 20 is distinguished from and allowable over the teachings of Wolpack.

Claim 21 is an independent claim. Claim 21 requires "input logic on said first controller receiving a request to reserve said input/output device; and communications logic communicating from said first controller to said second controller a reservation request for said input/output device for execution by said second controller, in response to said receiving." Wolpack describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Wolpack does not disclose "input logic on said first controller receiving a request to reserve said input/output device" of Claim 21. Further, Wolpack does not teach "communications logic communicating from said first controller to said second controller a reservation request for said input/output device for execution by said second controller, in response to said receiving" of Claim 21. For at least these reasons, the independent Claim 21 is distinguished from and allowable over the teachings of Wolpack.

Claim 2 is dependent on the independent Claim 1. Claim 2 requires "reserving said logical I/O device for said first node within said second controller, in response to said communicated reservation request." The Examiner suggests that Wolpack teaches the claimed limitations. The Applicants respectfully disagree. Wolpack describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Wolpack does not teach "reserving said logical I/O device for said first node within said second controller, in response to said communicated reservation request." Further differences between the cited art and Claim 2 have been argued relative to Claim 1 and the Examiner is referred to those remarks rather than repeating them here. For at least these reasons, the dependent Claim 2 is further distinguished from and allowable over the teachings of Wolpack.

The Applicant submits that Claim 3 dependent from Claim 2, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 4 dependent from Claim 3, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 6 dependent from Claim 1, is patentable for at least the same reasons

as the underlying base claims and furthermore because it adds additional distinguishing limitations.

The Applicant submits that Claim 13 dependent from Claim 12, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 14 dependent from Claim 12, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations.

The Applicant submits that Claim 22 dependent from Claim 21, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 23 dependent from Claim 21, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations.

35 U.S.C. 102 rejection of Claims 7-10, and 16-17

The Examiner has rejected Claims 7-10, and 16-17 based on figure 1-1 of Wolfpack and a description from page 2 of Wolfpack. In order to constitute a 102 reference, the reference must teach all the limitations of the claim. Wolfpack figure 1-1 describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1) (Wolfpack, figure 1-1, page 6). The Examiner suggests that Wolfpack discloses that one or more hard disks attach to the SCSI bus(es) and some SCSI disks also store data used to manage the cluster (page 2 of Wolfpack). The Examiner suggests that these disks are equivalent to the applicant's claimed computer-readable medium for storing instructions. Applicants respectfully assert that even if these disks are capable of storing instructions, the mere fact that the disks may store instructions does not suggest or teach the instructions of claims 7-10, and 16-17.

Claim 7 is an independent claim. Claim 7 requires "instructions ... to manage access to a logical I/O device in said computer system by: receiving on said first controller a request to reserve said logical I/O device; and communicating in response to receiving said request, a reservation request for said logical I/O device from said first controller to said second controller for execution by said second controller." Wolfpack describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O

device (Disk 1). Wolfpack does not disclose "receiving on said first controller a request to reserve said logical I/O device" of Claim 7. Further, Wolfpack does not teach "communicating in response to receiving said request, a reservation request for said logical I/O device from said first controller to said second controller for execution by said second controller" of Claim 7. For at least these reasons, the independent Claim 7 is further distinguished from and allowable over the teachings of Wolfpack.

Claim 16 is an independent claim. Claim 16 requires "a computer program ... to manage access to a logical I/O device in said computer system by: receiving on said first controller a request to release said logical I/O device; and communicating by means of a bus from said first controller to a second controller of a second node a release request for said logical I/O device for execution by said second controller, in response to said receiving." Wolfpack describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Wolfpack does not teach or suggest "receiving on said first controller a request to release said logical I/O device" of Claim 16. Further, Wolfpack does not teach or suggest "communicating by means of a bus from said first controller to a second controller of a second node a release request for said logical I/O device for execution by said second controller, in response to said receiving" of Claim 16. For at least these reasons, the independent Claim 16 is further distinguished from and allowable over the teachings of Wolfpack.

Claim 8 is dependent on the independent Claim 7. Claim 8 requires "said computer program further including instructions causing access management by: reserving said logical I/O device for said first node within said second controller, in response to said reservation request." The Examiner suggests that Wolfpack teaches the claimed limitations. The Applicants respectfully disagree. Figure 1 of Wolfpack merely describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Wolfpack does not teach or suggest "reserving said logical I/O device for said first node within said second controller, in response to said reservation request" of Claim 8. Further differences between the cited art and Claim 8 have been argued relative to Claim 7. For at least these reasons the dependent Claim 8 is allowable.

Claim 9 is dependent on the dependent Claim 8. Claim 9 requires "said computer program instructions causing said reserving further comprise instructions for:

determining whether said logical I/O device is already reserved within said second controller; communicating a response, indicating failure to reserve said logical I/O device, to said first node when said logical I/O device is already reserved; and otherwise, reserving ... “. The Examiner suggests that Wolfpack teaches the claimed limitations. The Applicants respectfully disagree. Figure 1 of Wolfpack merely describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Further differences between the cited art and Claim 9 have been argued relative to Claim 8. For at least these reasons the dependent Claim 9 is allowable.

Claim 10 is dependent on the independent Claim 7. Claim 10 requires "after said receiving and before said communicating, said computer program further including instructions for: determining, in response to said reservation request, whether said logical I/O device is already reserved within said first controller, and aborting said method for managing access when said logical I/O device is already reserved; and otherwise, reserving said logical I/O device for said first node within said first controller.“ The Examiner suggests that Wolfpack teaches or suggests the claimed limitations. The Applicants respectfully disagree. Figure 1 of Wolfpack merely describes a first node (Node A), a second node (Node B), a bus (SCSI bus), and an I/O device (Disk 1). Wolfpack does not teach or suggest the claimed limitation. Further differences between the cited art and Claim 10 have been argued relative to Claim 7. For at least these reasons the dependent Claim 10 is allowable.

The Applicant submits that Claim 17 dependent from Claim 16, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations.

35 U.S.C. 103(a) Rejection of Claims 1-23

The Examiner has rejected Claims 1-23 under 35 U.S.C. 103(a) as being unpatentable over the submitted prior art Wolfpack in view of the popular industrial fault-tolerance practice for servers, the RAID control. The Examiner suggests it is known to one in the computer art that the RAID can assist servers to provide a fault-tolerance platform, and it is a common industrial practice to equip the server with a SCSI RAID control card that has an embedded RAID program. Applicants agree that

RAID may assist servers in providing a fault-tolerance platform. Applicants further agree that it is a common industrial practice to equip a server with a SCSI RAID control card that has an embedded RAID program. However, Applicants respectfully disagrees with the supposition that popular industrial fault-tolerance practices for servers teaches or suggest communication between controllers to manage access to an I/O device.

Applicant seasonably challenges the Examiner statements based on the Examiner's personal knowledge under MPEP 2144.03 and requests that the Examiner provide a corresponding affidavit or an alternative reference if one could be identified. Given that the Wolfpack reference does not suffices as a proper 35 U.S.C. 102 / 103(a) rejection, application trusts that if the claims can not be allowed then the next office action not be a final office action given the somewhat nebulous nature of the 103 rejection.

Claim 1 is an independent claim. Claim 1 requires "communicatively coupling first and second nodes, having respective first and second bus controllers, and a logical I/O device, by means of a bus and said first and second bus controllers; receiving on said first controller a request to reserve said logical I/O device; and communicating by means of said bus from said first to said second controller a reservation request for said logical I/O device for execution by said second controller, in response to said receiving". This is elaborated on in part at page 12 lines 19-32 of the specification and makes it clear that a communication is sent to a second controller. Applicant submits that such indirect communication is not taught or suggested by either reference cited by the Examiner. The benefit of a reference that teaches or suggests such indirect communication would be appreciated by the Applicants.

Accordingly, neither Wolfpack nor "popular industrial fault-tolerance practices" teach or suggest "communicatively coupling first and second nodes, having respective first and second bus controllers, and a logical I/O device, by means of a bus and said first and second bus controllers" of Claim 1. Neither Wolfpack nor "popular industrial fault-tolerance practices" teach or suggest "receiving on said first controller a request to reserve said logical I/O device" of Claim 1. Further, neither Wolfpack nor "popular industrial fault-tolerance practices" teach or suggest "communicating by means of said bus from said first to said second controller a reservation request for said logical I/O

device for execution by said second controller, in response to said receiving” of Claim 1. For at least these reasons, the independent Claim 1 is further distinguished from and allowable over the teachings of Wolpack in view of “popular industrial fault-tolerance practices”.

The Applicant submits that Claim 2 dependent from Claim 1, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 3 dependent from Claim 2, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 4 dependent from Claim 3, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 5 dependent from Claim 1, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 6 dependent from Claim 1, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations.

Claim 7 is an independent claim. Claim 7 requires “a computer program including instructions for causing a first node in a computer system, having a first bus controller, to manage access to a logical I/O device in said computer system by: receiving on said first controller a request to reserve said logical I/O device; and communicating in response to receiving said request, a reservation request for said logical I/O device from said first controller to said second controller for execution by said second controller.” This is elaborated on in part at page 12 lines 19-32 of the specification and makes it clear that a communication is sent to a second controller. Applicant submits that such indirect communication is not taught or suggested by either reference cited by the Examiner. The benefit of a reference that teaches or suggests such indirect communication would be appreciated by the Applicants.

Accordingly, neither Wolpack nor “popular industrial fault-tolerance practices” teach or suggest “receiving on said first controller a request to reserve said logical I/O device” of Claim 7. Further, neither Wolpack nor “popular industrial fault-tolerance practices” teach or suggest “communicating in response to receiving said request, a

reservation request for said logical I/O device from said first controller to said second controller for execution by said second controller” of Claim 7. For at least these reasons, the independent Claim 7 is further distinguished from and allowable over the teachings of Wolpack in view of “popular industrial fault-tolerance practices”.

The Applicant submits that Claim 8 dependent from Claim 7, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 9 dependent from Claim 8, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 10 dependent from Claim 7, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations.

Claim 11 is an independent claim. Claim 11 requires “instructions for: receiving on said first controller a request to reserve said logical I/O device; and communicating in response to receiving said request, a reservation request for said logical I/O device from said first controller to a second controller of a second node for execution by said second controller”. This is elaborated on in part at page 12 lines 19-32 of the specification and makes it clear that a communication is sent to a second controller. Applicant submits that such indirect communication is not taught or suggested by either reference cited by the Examiner. The benefit of a reference that teaches or suggests such indirect communication would be appreciated by the Applicants.

Accordingly, neither Wolpack nor “popular industrial fault-tolerance practices” teach or suggest “receiving on said first controller a request to reserve said logical I/O device” of Claim 11. Further, neither Wolpack nor “popular industrial fault-tolerance practices” teach or suggest “communicating in response to receiving said request, a reservation request for said logical I/O device from said first controller to a second controller of a second node for execution by said second controller” of Claim 11. For at least these reasons, the independent Claim 11 is further distinguished from and allowable over the teachings of Wolpack in view of “popular industrial fault-tolerance practices”.

Claim 12 is an independent claim. Claim 12 requires “receiving, on said first controller, a request to release said logical I/O device; and communicating a release

request for said logical I/O device over said bus from said first controller to said second controller for execution by said second controller, in response to said receipt of said request to release.” This is elaborated on in part at page 12 lines 19-32 of the specification and makes it clear that a communication is sent to a second controller. Applicant submits that such indirect communication is not taught or suggested by either reference cited by the Examiner. The benefit of a reference that teaches or suggests such indirect communication would be appreciated by the Applicants.

Accordingly, neither Wolfpack nor “popular industrial fault-tolerance practices” teach or suggest “receiving, on said first controller, a request to release said logical I/O device” of Claim 12. Further, neither Wolfpack nor “popular industrial fault-tolerance practices” teach or suggest “communicating a release request for said logical I/O device over said bus from said first controller to said second controller for execution by said second controller, in response to said receipt of said request to release” of Claim 12. For at least these reasons, the independent Claim 12 is further distinguished from and allowable over the teachings of Wolfpack in view of “popular industrial fault-tolerance practices”.

The Applicant submits that Claim 13 dependent from Claim 12, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 14 dependent from Claim 12, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 15 dependent from Claim 12, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations.

Claim 16 is an independent claim. Claim 16 requires “a computer program ... to manage access to a logical I/O device in said computer system by: receiving on said first controller a request to release said logical I/O device; and communicating by means of a bus from said first controller to a second controller of a second node a release request for said logical I/O device for execution by said second controller, in response to said receiving.” This is elaborated on in part at page 12 lines 19-32 of the specification and makes it clear that a communication is sent to a second controller. Applicant submits that

such indirect communication is not taught or suggested by either reference cited by the Examiner. The benefit of a reference that teaches or suggests such indirect communication would be appreciated by the Applicants.

Accordingly, neither Wolfpack nor “popular industrial fault-tolerance practices” teach or suggest “receiving on said first controller a request to release said logical I/O device” of Claim 16. Further, neither Wolfpack nor “popular industrial fault-tolerance practices” teach or suggest “communicating by means of a bus from said first controller to a second controller of a second node a release request for said logical I/O device for execution by said second controller, in response to said receiving” of Claim 16. For at least these reasons, the independent Claim 16 is further distinguished from and allowable over the teachings of Wolfpack in view of “popular industrial fault-tolerance practices”.

The Applicant submits that Claim 17 dependent from Claim 16, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 18 dependent from Claim 16, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations.

Claim 19 is an independent claim. Claim 19 requires a “means for receiving on said first controller a request to reserve said logical I/O device; and means for communicating from said first to said second controller a reservation request for said logical I/O device for execution by said second controller, in response to said receiving.” This is elaborated on in part at page 12 lines 19-32 of the specification and makes it clear that a communication is sent to a second controller. Applicant submits that such indirect communication is not taught or suggested by either reference cited by the Examiner. The benefit of a reference that teaches or suggests such indirect communication would be appreciated by the Applicants. Accordingly, neither Wolfpack nor “popular industrial fault-tolerance practices” teach or suggest a “means for receiving on said first controller a request to reserve said logical I/O device” of Claim 19. Further, neither Wolfpack nor “popular industrial fault-tolerance practices” teach or suggest a “means for communicating from said first to said second controller a reservation request for said logical I/O device for execution by said second controller, in response to said receiving” of Claim 19. For at least these reasons, the independent Claim 19 is further distinguished

from and allowable over the teachings of Wolfpack in view of “popular industrial fault-tolerance practices”.

Claim 20 is an independent claim. Claim 20 requires a “means for receiving on said first controller a request to release said logical I/O device; and means for communicating by means of said bus from said first to said second controller a release request for said logical I/O device for execution by said second controller, in response to said receiving.” This is elaborated on in part at page 12 lines 19-32 of the specification and makes it clear that a communication is sent to a second controller. Applicant submits that such indirect communication is not taught or suggested by either reference cited by the Examiner. The benefit of a reference that teaches or suggests such indirect communication would be appreciated by the Applicants. Accordingly, neither Wolfpack nor “popular industrial fault-tolerance practices” teach or suggest a “means for receiving on said first controller a request to release said logical I/O device” of Claim 20. Further, neither Wolfpack nor “popular industrial fault-tolerance practices” teach or suggest a “means for communicating by means of said bus from said first to said second controller a release request for said logical I/O device for execution by said second controller, in response to said receiving” of Claim 20. For at least these reasons, the independent Claim 20 is further distinguished from and allowable over the teachings of Wolfpack in view of “popular industrial fault-tolerance practices”.

Claim 21 is an independent claim. Claim 21 requires “input logic on said first controller receiving a request to reserve said input/output device; and communications logic communicating from said first controller to said second controller a reservation request for said input/output device for execution by said second controller, in response to said receiving.” This is elaborated on in part at page 12 lines 19-32 of the specification and makes it clear that a communication is sent to a second controller. Applicant submits that such indirect communication is not taught or suggested by either reference cited by the Examiner. The benefit of a reference that teaches or suggests such indirect communication would be appreciated by the Applicants.

Accordingly, neither Wolfpack nor “popular industrial fault-tolerance practices” teach or suggest “input logic on said first controller receiving a request to reserve said input/output device” of Claim 21. Further, Neither Wolfpack nor “popular industrial

fault-tolerance practices” teach or suggest “communications logic communicating from said first controller to said second controller a reservation request for said input/output device for execution by said second controller, in response to said receiving” of Claim 21. For at least these reasons, the independent Claim 21 is further distinguished from and allowable over the teachings of Wolpack in view of “popular industrial fault-tolerance practices”.

The Applicant submits that Claim 22 dependent from Claim 21, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations. The Applicant submits that Claim 23 dependent from Claim 21, is patentable for at least the same reasons as the underlying base claims and furthermore because it adds additional distinguishing limitations.

Applicant respectfully requests that the Examiner precisely identify teachings or suggestions in the prior art that would preclude patentability of the pending and added claims in the event that the Examiner is not in a position to allow the claims now pending.

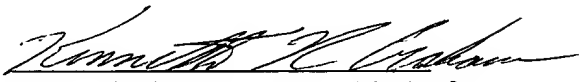
For the reasons given above, applicants respectfully submit that the claims, as amended, are now in a condition for allowance, and allowance at an early date would be appreciated. Should the Examiner have any questions or comments, he is encouraged to call the undersigned at (415) 781-1989 to discuss the same so that any outstanding issues can be expeditiously resolved.

Additional Remarks

The Commissioner is authorized to debit any fees associated with this Communication to Deposit Account 50-2319 (Order No. A-66977/RMA/KRG) that have not otherwise been paid, including fees for any added claims or fees for Petition for Extension of time that may be required.

Respectfully submitted,
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